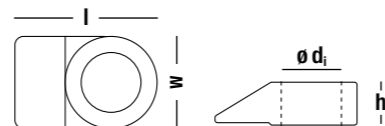
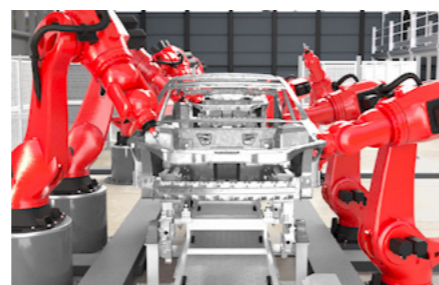
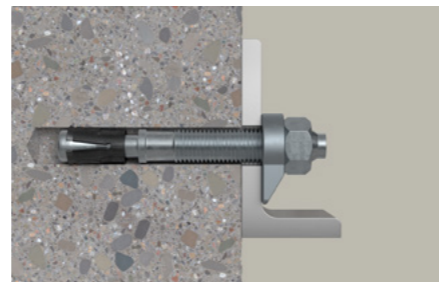


SensorDisc FCM-D
Technical data sheet.



SensorDisc FCM-D



Product range - Technical data.

Item	Short name	Art.-No.	Sales unit	Bolt size (metric)	Internal diameter	External diameter	Length	Width	Height	Unit weight	Case material
SensorDisc M16	FCM-D M16 HCR 1P	569671	1	16	16.5	25.3	43.4	32	14.5	56	1.4410
	FCM-D M16 HCR 6P	569672	6	16	16.5	25.3	43.4	32	14.5	56	1.4410
	FCM-D M16 HCR 20P	569673	20	16	16.5	25.3	43.4	32	14.5	56	1.4410
SensorDisc M20	FCM-D M20 HCR 1P	569668	1	20	20.5	32	49.5	32	14.5	74	1.4410
	FCM-D M20 HCR 6P	569669	6	20	20.5	32	49.5	32	14.5	74	1.4410
	FCM-D M20 HCR 20P	569670	20	20	20.5	32	49.5	32	14.5	74	1.4410
SensorDisc M24	FCM-D M24 HCR 1P	569665	1	24	24.75	36.6	54.6	36.6	14.5	86	1.4410
	FCM-D M24 HCR 6P	569666	6	24	24.75	36.6	54.6	36.6	14.5	86	1.4410
	FCM-D M24 HCR 20P	569667	20	24	24.75	36.6	54.6	36.6	14.5	86	1.4410
SensorDisc M27*	FCM-D M27 HCR 1P	-	1	27	27.9	41.3	59.3	41.3	14.5	103	1.4410
	FCM-D M27 HCR 6P	-	6	27	27.9	41.3	59.3	41.3	14.5	103	1.4410
	FCM-D M27 HCR 20P	-	20	27	27.9	41.3	59.3	41.3	14.5	103	1.4410
SensorDisc M30*	FCM-D M30 HCR 1P	-	1	30	31	46.1	64.1	46.1	14.5	122	1.4410
	FCM-D M30 HCR 6P	-	6	30	31	46.1	64.1	46.1	14.5	122	1.4410
	FCM-D M30 HCR 20P	-	20	30	31	46.1	64.1	46.1	14.5	122	1.4410

* Available upon special request - not in permanent stock

The meaning of the designations

FCM-D MXX HCR 20P	FCM-D MXX HCR 20P	FCM-D MXX HCR 20P	FCM-D MXX HCR 20P	FCM-D MXX HCR 20P
fischer Construction Monitoring	SensorDisc	Metric bolt size according to DIN 13-1 M16, M20, M24, M27, M30	Highly corrosion resistant steel (HCR)	Sales unit

Technical specifications.

Bolt size	Symbol	Unit	Value				
			M16	M20	M24	M27*	M30*
Mechanical properties							
Nominal load	F_{nom}	kN	60	100	145	200	265
Temporary overload (60 seconds)	F_{max}	kN	72	120	174	240	318
Calculated failure load	F_B	kN	115	180	255	335	410
Measurement Characteristics							
Uncertainty of measurement ¹⁾	-	%	15				
Temperature effect at F_{nom}	-	%/K	< 0.6	< 1	< 1.5	< 2	< 2.7
Zero-point error in relation to F_{nom}	-	%	5	5	5	5	5
Recommended minimal load	F_{min}	kN	18	30	43.5	60	79.5
Environment							
Temperature range	T_{gebr}	°C	-20 to +60				
Reference temperature	T_{Ref}	°C	+23				
IP code according to DIN EN 60529	IP68						
Interface							
Transmission standard	-	-	ISO 15693				
NFC-Type	-	-	NFC Forum Type 5 passive				
Frequency	-	-	13.56 MHz				
Internal Voltage	U_{SDMax}	V	<10				
Encryption	-	-	Proprietary algorithm				
Certificates							
Available conformity certificates	RoHS, REACH, CE						

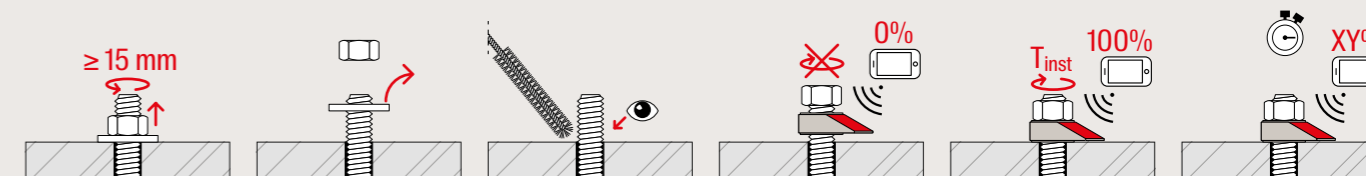
1) The measurement uncertainty of the SensorDisc can be significantly influenced by the following factors:

- Angle between SensorDisc and bolt axis. Use of stainless steel spherical washers (DIN 6319) may mitigate the negative effect of oblique load application.
- Surface geometry of the nut
- Clamping length
- Retightening of the screw connection

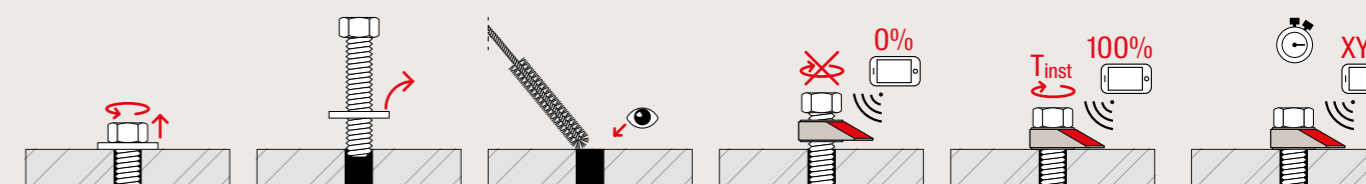
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The SensorDisc outputs a relative percentage load level of the bolted joint. An absolute measurement in kN is not specified. The preload level is defined via a two-point calibration by the customer in the installation situation. The load-free state is defined as 0%, the force after installation is defined as 100%.

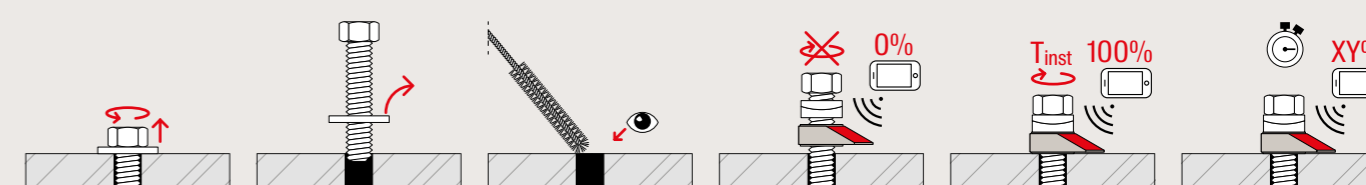
Installation SensorDisc FCM-D bolt nut



Installation SensorDisc FCM-D bolt head



Installation SensorDisc FCM-D spherical washers according to DIN 6319



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